—Revision of tariff periodically to improve internal generation of resources; and

—Proposals for formation of Joint Ventures with concerned State Governments.

Mutation Breeding Programme of BARC

8139. SHRI RAM RATAN RAM: Will the PRIME MINISTER be pleased to state:

(a) what are the high yielding varieties in agriculture which have been developed as a result of mutation breeding programme of the Bhabha Atomic Research Centre (BARC);

(b) whether this research has reached the farmers;

(c) what is its cost effectiveness; and

(d) what steps are being taken to encourage the same?

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE (SHRI BHUVNESH CHATURVEDI): (a) A number of improved selections have been evolved as a result of mutation breeding programme of the Bhabha Atomic Research Centre (BARC), Trombay. Of these, nineteen high yeilding varieties of crop plants have been released for commercial cultivation. These include eight varieties of groundnut, three of blackgram, two of greengram, two of pigeonpea, two of mustard and one each of rice and jute.

(b) Yes, Sir.

(c) The cost for developing improved varieties has been minimal and borne from the Research & Development budget. As far as the farmer is concerned, the cost of the seeds of these improved varieties will be similar to the cost of the certified seeds of any other variety. They will get additional benefit because of a high yeild and improved quality of the seeds.

(d) In collaboration with the Indian Council of Agricultural Research and State Agricultural Universities, breeder seeds of these varieites are being produced and supplied to National and State Seed Corporations, who in turn produce certified seeds for distribution to farmers.

Benefits of Atomic Energy in Various fields

8140. SHRI V RAJESHWAR RAO: Will the PRIME MINISTER be pleased to state:

(a) to what extent the benefits of Atomic Energy have been assimilated by medicine, agriculture, industry and research fields;

(b) what steps are being taken to encourage the same; and

(c) what are our standards in comparison to the developed countries in this field?

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE (SHRI BHUVNESH CHATURVEDI): (a) Nuclear medicine is practised in over 200 medical institutions in the country with 30 others offering radioimmunoassay service. Over 6,00,000 patient investigations per year are carried out in India using radiopharmaceuticals. There are about 130 cobalt-60 teletherapy units for the treatment of cancer.

Radioisotope tracer technology, nucleonic gauging and radiography are widely used by the Indian Industry for trouble-shooting, for Non Destructive testing and for online process control. Isotope techniques are used for surface water and ground water hydrology, seepage investigations in dams, canals and tunnels and bedload transport studies in ports and harbours. Steel Authority of India Ltd. and Oil and Natural Gas Commission have now established their own tracer groups for in-house applications. About 500 organisations in the country are using industrial isotope radiography and about 42000 nucleonic control systems are in operation in the Indian industry for process control. Nuclear energy in the form of radiations and radioisotopes are being